Aircraft Parts & Components Market in China

Summary

China's rapidly growing aviation industry has expanded export opportunities for U.S. aircraft parts manufacturers. Accounting for a substantial share of China's import market, U.S. manufactured aircraft parts are especially well received due to consistently superior quality and performance in comparison to domestically manufactured parts. U.S. exporters of aircraft parts will find Chinese airlines, maintenance and repair companies, large import/export conglomerates, and aircraft subassembly enterprises, as the most viable market entry channels.

Market Overview

China's import market for aircraft parts is valued at more than one billion dollars and has quadrupled in size over the past 10 years. The fundamental driver of market demand is the growth and development in China's civil aviation industry. According to Boeing's "Current Market Outlook," China's air traffic volume is expected to grow at an average rate of 7.3% annually over the next two decades. The report also forecasts that by 2023 China will quadruple its fleet by nearly 2,300 to reach 2,801 aircraft, of which single-aisle airplanes will account for 63% of new purchases, followed by intermediate twin-aisle aircraft (20%), regional jets (14%), and larger-size airplanes (2%). In contrast, Airbus' forecast suggests that China will expand its aircraft fleet by 1,790 passenger and cargo aircraft over the next twenty years, creating a fleet three times its present size. Despite the varied forecast, both global aircraft manufacturers agree that China will emerge as the world's second largest aviation market outside the United States over the next twenty years. As China's fleet of passenger aircraft continues to expand and age, the demand for parts and equipment used for routine maintenance and repair will continue to rise.

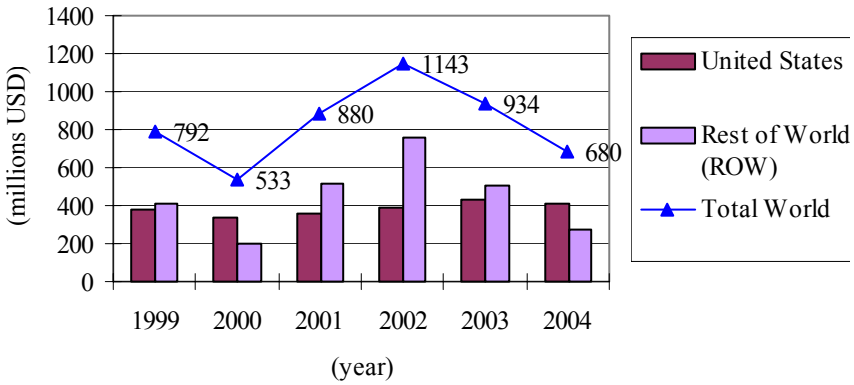
Import Market

Between 2000-2004, China's market for imported aircraft parts[1] was valued between $500 million - $1 billion. Crucial to its growing aviation industry, the majority of China's imports are from the United States (Note: Chart 1 – China's Import Market for Aircraft Parts & Chart 2 – China's Import of Aircraft Parts by Country). In 2004, China imported approximately $415 million of U.S. aircraft parts (HS 8803), composed of propellers, rotors, undercarriages (landing gear) and other related civil aircraft parts, with another $280 million of U.S. aircraft part imports composed of turbojets, turbo propellers, gas turbine engines, and related parts (HS 8411). Other broad categories of U.S. aircraft part related exports to China valued at nearly $20 million include reaction engines (HS 8412), aircraft seats (HS 9401), new pneumatic tires (HS 4011), parts for spark-ignition type aircraft engines (HS 8409), direction finding compasses (HS 9014), and aircraft launching gear and parts (HS 8805).

[1]Aircraft parts are defined as items classified under HS 8803.

Chart 1

China's Import Market for Aircraft Parts (HS 8803)



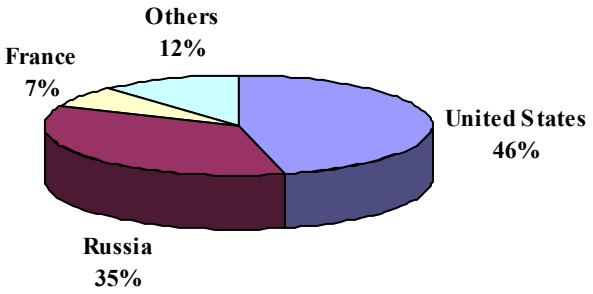
Source: World Trade Atlas (China Customs)

Competition

U.S. exports enjoy a solid position in China's market for imported aircraft parts. In 2004, U.S. aircraft exports comprised 46% of China's aircraft part imports, followed by Russia and France (Note: Chart 1 – China's Import of Aircraft Parts by Country). U.S. trade statistics indicate a 60% increase in U.S. aircraft parts exports to China for the first half of this year. U.S. exports of turbojets, turbo propellers, gas turbine engines, and related parts covered by HS 8411, enjoy a similar market position, accounting for nearly one-half of China's imports, followed by the United Kingdom (17%), Germany (15%), and France (10%). U.S. exports have consistently enjoyed a dominant position in the market, relative to other foreign competitors.

Chart 2

China's Import of Aircraft Parts by Country (HS 8803)



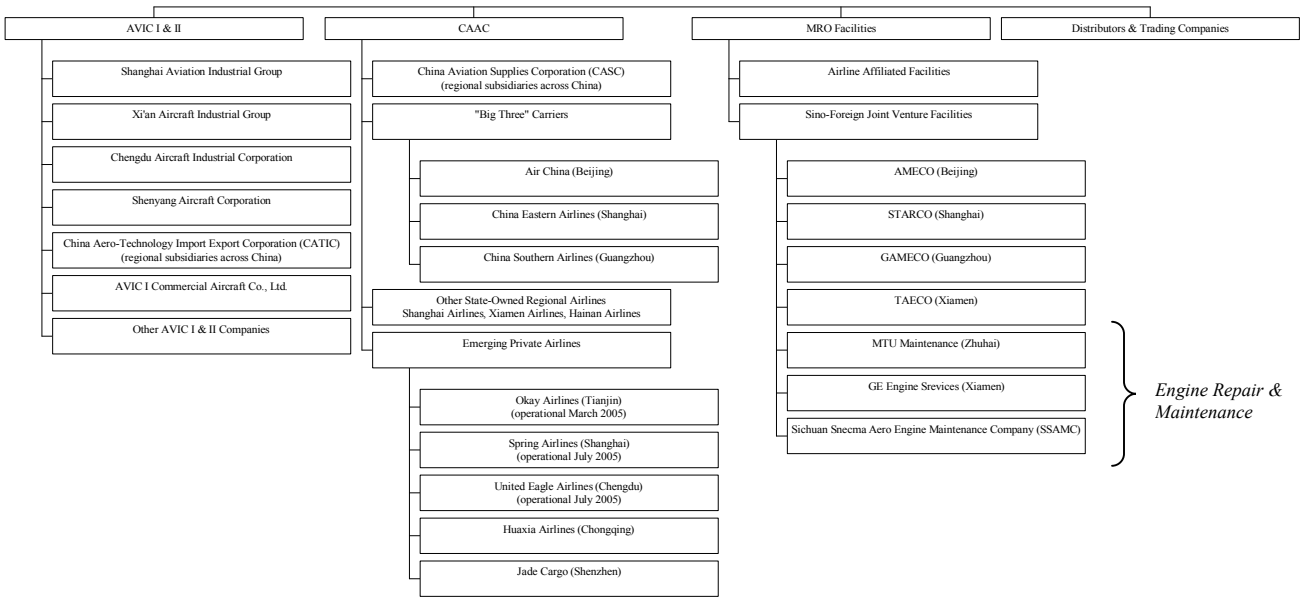
Source: World Trade Atlas (China Customs)

As for domestic competition, there are approximately 200 small aircraft parts manufacturers in addition to a number of major manufacturing entities such as Shanghai Aviation Industrial Group Corporation (SAIC), Chengdu Aircraft Industrial Corporation (CAIC), Shenyang Aircraft Corporation (SAC), and Xi'an Aircraft Industrial Corporation (XAIC). Currently, only a segment of China's domestic manufacturing sector is able to meet the quality standards that the market demands. Accordingly, for the immediate future, China's aviation sector will remain reliant on imported products and technologies.

Market Entry Channels: Key Buyers & End Users

China's primary buyers and end users of aircraft parts are comprised of domestic airlines, maintenance & repair companies, and AVIC I enterprises.

China's Major Buyers & End Users of Aircraft Parts



Airlines

The General Administration of Chinese Civil Aviation (CAAC) governs China's domestic airline industry. While traditionally serving as both domestic airline owner and industry regulator, after recent restructuring, CAAC shifted its role towards that of sole industry regulator, similar to the U.S. Federal Aviation Administration. However, in addition to regulating and licensing airline routes and managing air safety, CAAC also decides airfares and makes the final determination on all major aircraft purchases.

In 2002, CAAC continued aviation industry restructuring endeavors by consolidating the nine airlines that remained under its direct authority. The result was the formation of the "big three" airline groups - Air China, China Southern Airlines, and China Eastern Airlines. While the "big three" dominate China's civil aviation market, there are also a number of second and third tier state-owned regional carriers such as Hainan Airlines, Shanxi Airlines, Shenzhen Airlines, Xiamen Airlines, and Shanghai Airlines.

The state-owned airlines generally operate a well established import/export company to handle procurement of imported aircraft parts and generally enjoy independent decision-making authority for their daily operations, including procurement. These companies represent the best channel for direct sales and the U.S. Commercial Service (USFCS) in China can assist you in connecting with these key contacts.

China's "big three" carriers include:

- **Air China**
  Air China, the national flag carrier, operates 149 aircraft including 123 Boeing 737, 747,757, 767, and 777 aircraft and 26 Airbus 319, 320, and 340 aircraft. Based in Beijing, the airline is China's second largest carrier. Air China has majority ownership in Shandong Airlines, and in 2004 absorbed Zhejiang Airlines and China Southwest Airlines.

- **China Southern Airlines**
  China Southern Airlines, based in Guangzhou, is the largest airline in China. The airline operates 184 aircraft comprised of 91 Boeing 737, 747, 757, and 777 as well as 40 Airbus 300, 319, 320, 321, and 330 aircraft and a number of Embraer ERJ-145 and McDonnell Douglass MD-82 and MD-90 aircraft. Subsidiary airlines include Xiamen Airlines, Shantou Airlines, Guangxi Airlines, Zhuhai Airlines, Guizhou Airlines, China Northern Airlines and Xinjiang Airlines.

- **China Eastern Airlines**
  China Eastern Airlines, is based in Shanghai with a number of subsidiaries including Great Wall Airlines, Yunnan Airlines, and China Northwestern Airlines. As China's third largest carrier, China Eastern Airlines currently operates 160 aircraft, including 44 Boeing 737 aircraft and 98 Airbus A320, 319, 310 and 300 aircraft, as well as 18 McDonnell Douglass MD-11, MD-82, and MD-90 aircraft.

In addition to state owned carriers, China is also home to an emerging private airline sector. These airlines have in house procurement departments and represent a small but growing market for U.S. aircraft parts manufacturers. Establishing business partnerships with these newly formed private airlines, creates future sales prospects as these airlines grow their fleets.

- **Okay Airlines**
  On March 11, 2005, Tianjin-based Okay Airways' embarked on its first passenger flight, becoming China's first operational private airline. Owned by Beijing Okay Traffic & Energy Investment Co. and other investors, the airline currently operates one Boeing 737-900 aircraft, with plans to expand to a fleet of six in the near future.

- **Spring Airlines**
  Spring Airlines, also a newly formed private low-budget airline, launched its maiden flight on July 18, 2005. The airline currently operates three Airbus 320 aircraft and has plans to expand its current fleet of aircraft to 30 within the next five years. Spring International Travel Service, a large Chinese travel agency group, owns spring Airlines.

- **United Eagle Airlines**
  United Eagle Airlines, embarked on its first flight on July 26, 2005. The airline is owned by a Guangzhou-based IT firm and started operations with four Airbus 319 and 320 aircraft with plans to expand its existing fleet to more than ten aircraft within three years

- **Other Private Airlines**
  Pending various approvals, several other private airlines are expected to make a debut on China's aviation stage - Jade Cargo International (Shenzhen) and Huaxia Airlines (Chongqing).

Maintenance, Repair & Overhaul Facilities

According to KPMG's "China Aircraft Component Market" report, China's market for maintenance, repair and overhaul (MRO) is expected to grow more than 6% annually over the next 5 years, reaching total revenue of $160 million. U.S. companies that manufacture aircraft parts and testing equipment used by MRO facilities to service aircraft engines, landing gear, brakes and wheels, conduct maintenance checks and repairs and overhaul aircraft, will find potential opportunities to supply such facilities, particularly as new and existing facilities are established and expanded. MRO facilities generally stock standard parts and place orders for customized parts from authorized foreign as well as domestic vendors and manufacturers.

Generally, most major airlines have affiliated MRO facilities such as China Eastern Airlines' Shanghai Aircraft Maintenance Base (SMB). In addition to such facilities, a number of large joint venture facilities also exist. These companies serve domestic and international airlines.

- **Aircraft Maintenance and Engineering Corporation (AMECO)**
  Located at Beijing's Capital International Airport, AMECO is a joint venture facility operated by Air China and Lufthansa Airlines. The company provides line maintenance and services Boeing and Airbus aircraft, performs engine overhaul and repairs approximately 10,000 aircraft components including hydraulics, landing gear, wheels and brakes, avionics/electric systems, and pneumatics. AMECO holds FAA, EASA, CAAC and numerous other airworthiness certifications.

- **Shanghai Technologies Aerospace Company Limited (STARCO)**
  STARCO is a joint venture operated by Singapore Technologies Aerospace and China Eastern Airlines, with a facility located at the Shanghai Hongqiao Airport. STARCO provides airframe maintenance and modification, aircraft conversions, engine and component (i.e. hydraulics, flight controls, mechanical accessories, landing gear, and fuel components). The facility can simultaneously accommodate two wide body and two narrow body aircraft. STARCO plans to expand operations to include a facility at the Shanghai Pudong International Airport in 2006. STARCO holds CAAC approval and expects to receive FAA and JCAB approval in 2005 and 2006, respectively.

- **Guangzhou Aircraft Maintenance Engineering Company Limited (GAMECO)**
  GAMECO, based in Guangzhou, is joint venture formed by China Southern Airlines, South China International Aircraft Engineering Co., Ltd and Hutchinson Aircraft

Maintenance Investment Ltd. In addition to line maintenance, the facility provides service to Boeing, Airbus and Embraer aircraft, specializing in airborne component MRO, engine performance monitoring, engineering services, line maintenance, airframe maintenance checks and modifications. GAMECO's new hangar at the Guangzhou Baiyun International Airport can accommodate four wide body aircraft or twelve narrow body aircraft. The company holds airworthiness certifications from the FAA, EASA, JAA, CAAC as well as Korea, Philippines and Macau.

- **Taikoo Aircraft Engineering Company Limited (TAECO)**
  Xiamen-based TAECO is owned by Hong Kong Aircraft Engineering Co. Ltd., Xiamen Aviation Industry Co., Ltd., Japan Airlines, Boeing Group, Cathay Pacific Airways, and Beijing Kailan Aviation Technology Development and Service Company. TAECO provides line maintenance and base maintenance services including D checks, cargo conversions, interior refurbishment, avionics upgrades, windshear installation, and pylon modification. TAECO's facility can accommodate up to six wide body aircraft and three narrow body aircraft. The company holds airworthiness certifications from FAA, EASA, CAAC as well as Japan, Hong Kong, Singapore, Philippines, Macau, and UAE.

- **MTU Maintenance (Zhuhai)**
  MTU Maintenance, a joint venture between China Southern Airlines and MTU (Germany), is the largest independent aircraft engine maintenance and repair organization, providing service to its customers in East Asia. Primary services include repair, overhaul and maintenance of civil aircraft engines, engineering support, and technical support for assembly and disassembly aircraft engines.

- **GE Engine Services (Xiamen)**
  GE Engine Services Xiamen a joint venture facility formed by GE Engine, Xiamen Aviation Industry Co., Ltd, and Taikoo (Xiamen) Aircraft Engineering Co. The facility conducts overhaul and repair of engines manufactured by GE Aircraft Engines and CFM International.

- **Sichuan Snecma Aero Engine Maintenance Company Ltd. (SSAMC)**
  SSAMC is a joint venture company formed by Snecma Services (France), China Southwest Airlines, Willis Lease Finance (USA), and Beijing Kailan Aero Technology. Located at the Sichuan Shanghliu International Airport, SSAMC's workshop includes engine disassembly/assembly, engine parts cleaning, and non-destructive testing for CFM56 engines.

- **Other MRO Facilities**
  CEA Honeywell Aircraft Wheels & Brakes Repair and Overhaul, Ltd. (CEASA), a joint venture between China Eastern Airlines and Honeywell International Finance Company, is primarily focused on the maintenance, repair and overhaul of aircraft wheels, brakes and related components. The operation also handles carbon brake refurbishment. Collins Aviation Maintenance Services (CMASS) is a joint venture operation between China Eastern Airlines and Rockwell Collins International, which provides full repair and maintenance services for commercial air transport avionics and in-flight entertainment equipment. Both CEASA and CMASS are based in Shanghai.

In addition to these established facilities, the largest Boeing MRO facility in Asia, located at the Shanghai Pudong International Airport, is expected to become operational in late 2005. The Boeing Maintenance Center is a joint venture formed by The Boeing Company, Shanghai Airport Authority, and Shanghai Airlines, specializing in the modification and maintenance of Boeing aircraft.

AVIC I Enterprises

The Aviation Industries of China I & II (AVIC I & II) are large state-owned holding companies to many of China's aviation enterprises. AVIC I & II are comprised of nearly 200 import/export companies, component manufacturers, aircraft assembly operations, and research institutes. The scope of AVIC I encompasses large and medium sized aircraft and AVIC II focuses on feeder aircraft and helicopters. Both AVIC I & II cover civil and military aviation.

- **Manufacturing Enterprises**
  The Shanghai Aviation Industrial Group Corporation (SAIC), Chengdu Aircraft Industrial Corporation (CAIC), Shenyang Aircraft Corp. (SAC), and Xi'an Aircraft Industrial Corporation (XAIC), and AVIC I Commercial Aircraft Company are major AVIC I manufacturing enterprises that purchase imported aircraft parts and components for airframe assembly and subassembly. According to a recent KPMG report, these regionally based manufacturing groups supply large aircraft manufacturers - Boeing and Airbus - with various parts and assemblies ranging from engine parts, tail sections, emergency exit and cargo doors, horizontal stabilizers, and vertical fins. Opportunities exist for U.S. manufacturers to supply aircraft parts and components used in the assembly and subassembly process.

- **AVIC ARJ-21 Project**
  In addition to airframe assembly, AVIC I Commercial Aircraft Company (ACAC), based in Shanghai, has led its consortium of 15 shareholders in the development of China's first commercial aircraft, the ARJ 21 turbofan regional jet. The ARJ 21, a 100 passenger, single-aisle commercial aircraft designed for distances of 1200 to 2000 nautical miles, will be commercially produced and sold by 2009. Designed by China's First Aircraft Institute, there is extensive foreign participation in the project. While most airframe parts will be provided by AVIC I manufacturing enterprises, major foreign companies will supply much of the aircraft interior, engines and systems.

  Major suppliers of U.S. parts and technologies used in assembling the aircraft include: GE Aircraft Engines (engines), Honeywell-Parker (flight control systems), Rockwell Collins (avionics), Parker Hannifin (hydraulics and fuel systems), Kidde Aerospace (fire protection systems), Zodiac Air Cruisers (emergency evacuation), Hamilton Sundstrand (APU, electric and high lift systems), Envirovac (waste/water system), BE Aerospace (crew oxygen system), Eaton Aerospace (CPA and PWM dimming control), and Rosemount Aerospace (windshield heater and wipers). Other major European parts suppliers include: Fisher Advanced Composite Components (interior), Liebherr Aerospace (air management system and landing gear), Goodrich Hella Aerospace (lighting system), Zodiac Sicma Aero Seat (crew seats), Sagem (flight deck control),

Vibro-Meter (engine vibration monitor system), and Saint-Gobain-Sully (windshields and opening windows). In addition to U.S. and European suppliers, domestic companies such as Chengdu Aircraft Industrial Corporation (nose), Xian Aircraft Industrial Corporation (wing, FWD and MID fuselage), Shenyang Aircraft Industrial Corporation (empennage), Shanghai Aircraft Manufacturing Factory (AFT fuselage), and the AVIC I 637th Institute (radome), are the primary suppliers for the airframe.

While major aircraft parts suppliers have been selected, opportunity remains for U.S. SME manufacturers of small and niche aircraft components. Companies interested in presenting their products to AVIC I Commercial Aircraft Company for consideration should contact the USFCS Shanghai Office for additional details and assistance in connecting with relevant procurement contacts.

Aircraft Parts Distributors

According to a local distributor, China has approximately 20-30 aviation industry distributors. While all of the airlines, MRO facilities, and AVIC I enterprises run internal procurement operations, distributors and trading entities are often called upon for their extensive network of suppliers, ability to navigate the approval processes for imported parts, and handling of customs procedures. Two of the largest such companies are the China Aviation Supplies Corporation Group (CASC) and China Aero-Technology Import Export Corporation (CATIC). CASC is a diversified aviation service provider with extensive service offerings ranging from the import/export and distribution of aviation parts and aircraft leasing to aircraft and engine maintenance, aviation training, and the assembly of aircraft parts. CATIC is a large state-owned conglomerate owned by AVIC I & II, that specializes in the import and export of aviation products and technology. Both CASC and CATIC are headquartered in Beijing, but have offices and subsidiaries across China that procure aircraft parts and equipment.

Market Access

Although American products are well positioned in the Chinese market, there are some regulatory measures that must be taken into consideration prior to entering the market. U.S. aircraft part and engine exports must meet CAAC certification standards. While a particular part or engine may have U.S. Federal Aviation Authority (FAA) certification, the CAAC must grant its independent certification. This certification process can take anywhere from a few weeks to a few months depending on the part. CAAC certification may sometimes involve a U.S. factory visit by a Chinese aviation authority, which would extend the time required for approval.

Recent and Upcoming Events

2005 China Airport Forum
Date: August 24-26, 2005
Venue: Hangzhou Continental Hotel, Hangzhou

Airport and Air Traffic Control Expo China 2005
Date: September 21 – 24, 2005
Venue: China International Exhibition Center, Beijing

China Aviation Conference 2005
Date: September 29-30, 2005
Venue: Hilton Hotel, Beijing

Asian Aerospace
Date: February 21-26, 2006
Venue: Changi Exhibition Center, Singapore

Air Show China, 2006
Date: October 30 - November 5, 2006
Venue: Zhuhai International Exhibition Center, Zhuhai

Key Aviation Industry Contacts

Airlines

Air China
www.airchina.com.cn

China Eastern Airlines
www.ce-air.com

China Southern Airlines
www.cs-air.com

Shanghai Airlines
www.shanghai-air.com

Spring Airlines
www.air-spring.com

Government Authorities
General Administration of Chinese Civil Aviation (CAAC)
www.caac.gov.cn

AVIC I Enterprises

AVIC I Commercial Aircraft Co., Ltd.
www.acac.com.cn

AVIC I & AVIC II
www.avic1.com.cn and www.avic2.com

China Aero-Technology Import Export Corporation (CATIC)
www.catic.com.cn

China Aviation Supplies Corporation (CASC)
www.casc.com.cn

MRO Facilities

Aircraft Maintenance and Engineering Corporation (AMECO)
www.ameco.com.cn

Shanghai Technologies Aerospace Co. (STARCO)
http://www.staero.aero/starco.html

Guangzhou Aircraft Maintenance Engineering Company Limited (GAMECO)
www.gameco.com.cn

Taikoo Aircraft Engineering Company Limited (TAECO)
www.taeco.com

MTU Maintenance (Zhuhai)
www.mtuzhuhai.com

GE Engine Services (Xiamen)

Sichuan Snecma Aero Engine Maintenance Company Ltd. (SSAMC)
www.snecma.com

FCS Contacts

The U.S. Commercial Service in China stands ready to assist U.S. companies take advantage of the opportunities outlined in this report. We offer a full range of matchmaking services and encourage you to contact us directly to connect with agents, distributors and end users in China's aircraft parts and components market.

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